

Botany report for

Mooreville Ridge Insect and Disease Resilience Project

(Short form Biological Evaluation/ Biological Assessment/ Noxious Weed Risk Assessment)

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3/3/2020

My assessments, below, are based on Feather River RD GIS layers and other available records for survey areas, occurrences of species of conservation concern (rare plants: USFWS Listed Threatened or Endangered, FS Sensitive, and PNF Watch List), and infestations of non-native invasive plants (NNIP).

PROJECT DETERMINATION SUMMARY

Survey summary: COMPLETE.

Species of conservation concern (rare plants) summary:

- *There are no concerns for species of conservation concern (USFWS Listed Threatened or Endangered, FS Sensitive, and PNF Watch List species) with implementation of Management Requirements during project implementation (see Appendix A).*

Non-native invasive plants (NNIP) summary:

- *Concerns about NNIP in the project area are being addressed as part of project design with an integrated pest management program that meets the purpose and need for the project (see Appendix A).*

PROJECT DESCRIPTION

PROPOSED PROJECT ACTION AND DESCRIPTION.

The project area has become very dense, with a corresponding increase in true fir. With such a high density of white and red fir in the area, shade-intolerant and fire resilient species such as sugar, Jeffrey, and ponderosa pine as well as black oak have declined due to excessive competition for sunlight, water, and nutrients. These are not resilient forest conditions and will likely lead to unacceptable levels of tree mortality from bark beetles and disease or high severity wildfire.

Mooreville Ridge Insect and Disease Resilience Project, PALS 54027. The project area is located about 2 miles west and southwest of La Porte, California at elevations ranging between 3,700 and 5,900 feet (see Figure 1). Most of the area is comprised of Sierra mixed conifer consisting of white fir (*Abies concolor*), Douglas fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), sugar pine (*Pinus lambertiana*), incense cedar (*Calocedrus decurrens*), red fir (*Abies magnifica*), California black oak (*Quercus kelloggii*), and Pacific madrone (*Arbutus menziesii*). Most of the lower elevation stands are pine dominated mixed conifer while higher elevation stands are mostly fir dominated mixed conifer. Shade-intolerant pine species are mostly restricted to the overstory with limited regeneration due to overcrowding and dominance of white fir.

The Mooreville project proposes to reduce the risk of insect and disease-caused tree mortality through mechanical thinning. Fuels reduction and maintenance would be accomplished with mastication and prescribed burning. White fir will be removed in favor of retaining other tree species. The residual stands will be more open, increasing the amount of available soil moisture and sunlight for individual trees. We will treat no more than 3,000 acres by:

- Mechanical thinning in pine dominated mixed conifer commercial thinning to remove sawlog-sized trees ranging from 10.0 to 30.0 inches dbh limit. Cut tree mark using GTR 220 concepts to result in no more than 30% reduction in canopy cover averaged across stands.
- Mechanical thinning in fir dominated mixed conifer commercial thinning to remove sawlog-sized trees ranging from 10.0 to 30.0 inches dbh limit. Variable density thin using GTR 220 concepts to target true fir, leaving ponderosa, Jeffrey, and sugar pine, some incense cedar, and release California black oak and other canopy providing hard woods.
- Plantation thinning inside mechanical thinning stands are pole to small tree-sized plantations that are not suitable owl or goshawk habitat. Thin plantations to about 80-120 square feet/acre basal area emphasizing stand variability.
- Roadside hazard along roadsides in mechanical thinning and service stands remove dead or dying trees, dead parts of live trees, or unstable trees that are likely to fail in the near future and are within striking distance of people, facilities, or roads.
- Sub-merchantable biomass trees material may be treated by biomass to landing (unless a market for chips is identified) or follow up hand cut hand pile and burn, hand cut grapple pile and burn, mastication, or under-burning treatments.
- Service work use hand cut pile and burn, hand cut grapple pile and burn, mastication, or targeted grazing as needed where prescribed fire is not feasible or is not feasible without preparation treatments.
- Prescribed fire prioritizes acres for burning and design treatments that maximize the use of fire to achieve desired conditions.
- Maintenance hand cutting, hand- and/or grapple-piling, mastication, targeted grazing, and prescribed under-burning as needed on multiple entries over the next 15 to 20 years to maintain desired conditions.
- The project will include road improvements and maintenance.

SURVEYS

The project area has been completely surveyed for plant species of conservation concern (USFWS T&E, FS Sensitive, and PNF Watch List) and non-native invasive plants (NNIP), some areas more than once, by various Forest Service botanists between 2010 and 2019, mostly as part of project planning for earlier projects:

- 051103_2018_002 – in 2018 for this project (most of the Mooreville Ridge portion of the project area).
- 051103_2018_003 – in 2018 for this project (upper-most Mooreville Ridge portions of the project area) – with some follow-up surveys in 2019.
- 051103_2018_004 – in 2018 for this project (some of the Lexington Hill ridge portion of the project area) – with some follow-up surveys in 2019.
- 051103_2011_014 – in 2011 for the Grass Flat DFPZ project (upper-most portions of Mooreville Ridge and Lexington Hill ridge).
- 051103_2011_015 – in 2011 for the Grass Flat DFPZ project (upper-most portions of Mooreville Ridge).

- 051103_2011_019 – in 2011 for the Sugarloaf DFPZ project (Lexington Hill ridge portions).
- 051103_2011_020 – in 2011 for the Sugarloaf DFPZ project (Lexington Hill ridge portions).
- 051103_2010_030 – in 2010 for the Grass Flat DFPZ project (upper portions of Mooreville Ridge).
- 051103_2010_032 – in 2010 for the Grass Flat DFPZ project (upper-most portions of Mooreville Ridge and Lexington Hill ridge).

Survey summary: COMPLETE.

SPECIES OF CONSERVATION CONCERN (RARE PLANTS)

Two species of Forest Service Sensitive plants and four species of Plumas NF Watch List plants are known from within the project area (Table 1). Table 1 includes notes about the acres of distribution of each species within the project area and Management Requirements to ensure that no significant impacts would result from project implementation. The specific Management Requirements are summarized in Appendix A.

Table 1. Forest Service Sensitive and Plumas NF Watch List plant species found within the project area. See text below for specific Management Requirements for each species.

Scientific name	Common name	Management category ¹	Acres within Mechanical Thin Units/ percent protected	Acres within Service Units/ percent protected
<i>Clarkia mildrediae</i> ssp. <i>lutescens</i>	golden-anthered clarkia	PNF Watch List	0.46 / 48%	0.25 / 60%
<i>Cypripedium fasciculatum</i>	clustered lady's-slipper	FS Sensitive	0	0.21 / 100%
<i>Erigeron lassenianus</i> var. <i>deficiens</i>	Plumas rayless daisy	PNF Watch List	0	0.13 / 100%
<i>Erythranthe filicifolia</i>	fern-leaved monkeyflower	PNF Watch List	0	0.12 / 100%
<i>Lewisia kelloggii</i> ssp. <i>hutchisonii</i>	Hutchison's lewisia	FS Sensitive	0.34 / 100% ²	0.80 / 91% ²
<i>Peltigera gowardii</i>	western waterfan lichen	FS Sensitive	0	0.74 / 100%
<i>Viola tomentosa</i>	felt-leaved violet	PNF Watch List	2.71 / 84%	6.53 / 67%

¹In general Forest Service Sensitive species have stricter management requirements due to their greater level of rarity and their designation as Sensitive by the Regional Forester (USDA Forest Service 2013), compared to Watch List species which are designated by the Plumas NF Forest Supervisor (USDA Forest Service 2014).

²In addition, the 0.47 acres that are across the main dirt road from project units are being 100% protected to prevent vehicle and other impacts. This results in 96% of the total population 1.61 acres being protected.

- **Golden-anthered clarkia** (*Clarkia mildrediae* subsp. *lutescens* – PNF Watch List species).
 - This annual species is potentially known from a total of 0.71 acres within project activity units. The word “potential” is used here because 0.31 of these acres have a confirmed identification, while the remaining 0.40 acres have only tentative identifications. The occurrences with

confirmed identifications are in undisturbed sites, while most of the unidentified plants are found in old temp roads and skid trails.

- For golden-anthered clarkia, roadside occurrences and other sites of obvious prior disturbance are generally not protected from project activities. Occurrences found in natural openings are preferentially protected, and these are often areas of sparse timber to completely open canopy, and risk being used as landings and temp roads if not protected. For this project, all of the identified plants, and the 0.10 acres of unidentified plants that are in an undisturbed site, would be being protected within botany Controlled Areas.
- Although this species is generally visible from April to July, and often longer, it can only be identified to species in May and June to differentiate it from a couple of look-alike species that are also found within the project area: diamond clarkia (*Clarkia rhomboidea*), and starry clarkia (*Clarkia stellata*). Golden-anthered clarkia grows best in somewhat open forest and generally does well in full sun. It also tends to do well following underburns or light fire.
- PNF Management Prescription for this species (USDA Forest Service 2014) says to:
Evaluate all project activities on a site-by-site basis considering species abundance, population size, geographic distribution, and known species ecology. Focus on protecting plants in natural openings from ground disturbance, although light ground disturbance outside of the growing season may be acceptable. Canopy removal and prescribed fire in and adjacent to occurrences is encouraged to open the habitat and to maintain suitable habitat.
- **MANAGEMENT REQUIREMENTS.** Most of the golden-anthered clarkia plants are placed within botany Controlled Areas (CAs).
 - No heavy equipment allowed on the ground within Controlled Areas.
 - Remove hazard trees as necessary – minimize ground disturbance (consult with botanist).
 - No thinning of canopy (consult with botanist about potential variance if needed).
 - Do hand-cut brush and non-canopy trees per project prescriptions – but no burn piles within Controlled Areas and minimize lop-and-scatter within Controlled Areas.
 - Do underburn per project prescriptions.
- **Clustered lady's-slipper (*Cypripedium fasciculatum* – FS Sensitive species).**
 - Clustered lady's-slipper is known from two small locations within the project area. These sites are on relatively steep slopes, not far above ephemeral streams, with significant shade from the surrounding mixed conifer forest and with mountain dogwood usually present.
 - This species can usually be recognized from about May through October.
 - PNF Management Prescription for this species (USDA Forest Service 2014) says to:
Buffer all plant occurrences by approximately 100 ft. from ground disturbance to maintain canopy closure, hydrologic conditions, and mycorrhizal relationships. Keep handpiles at least 50 ft. from plants to protect individuals, seedbank, and mycorrhizae from excessive heat. Avoid scattering slash on plants. Evaluate potential effects of prescribed fire on a site-by-site basis considering factors such as population size, fuel load, season of burn, predicted intensity and duration of burn, and risk of wildfire vs. potential effects from prescribed fire. Develop monitoring plans to evaluate fire effects on individuals and populations before prescribed burning operations. To the extent possible, avoid ignitions within occurrences and avoid building fire control lines in or near occurrences. Also, allow fire to creep/back into occurrences from adjacent terrain if the fuel loading permits. Do not advertise locations, to minimize poaching. Evaluate other activities on a site-by-site basis considering species abundance, population size, geographic distribution, and known species ecology.
 - **MANAGEMENT REQUIREMENTS.** All occurrences of clustered lady's-slipper are placed within botany Controlled Areas (CAs).

- No heavy equipment allowed on the ground within Controlled Areas.
 - Remove hazard trees as necessary – minimize ground disturbance (consult with botanist).
 - No thinning of canopy (consult with botanist about potential variance if needed).
 - Do hand-cut brush and non-canopy trees per project prescriptions – but no burn piles within Controlled Areas and minimize lop-and-scatter within Controlled Areas.
 - Do underburn per project prescriptions, with the following caveats:
 - ✚ No ignitions within Controlled Areas.
 - ✚ Prior to any underburning, remove as much coarse woody debris as possible from within 5 ft of all lady's-slipper plants (this can usually be accomplished by the botany crew while refreshing Controlled Area flagging).
- **FS Sensitive plant species – may impact individuals of clustered lady's-slipper but not likely to cause a trend toward federal listing or loss of viability:**
- The above ground parts of some plants may be inadvertently damaged by human trampling and by underburning, but management requirements will specifically minimize this.
 - Clustered lady's-slipper plants would be protected from all potential mechanical ground-disturbing project activities.
 - Habitat would be improved by implementation of forest thinning activities while avoiding all ground-disturbing activities.
 - Risk of catastrophic wildfire would be greatly reduced.
- **Plumas rayless daisy (*Erigeron lassenianus* var. *deficiens* – PNF Watch List species).**
- Only one small occurrence of this small herbaceous perennial species is known from within the project area, about 0.13 acres. This site is in an open area of very shallow soil on top of the basalt flats that make up large portions of Mooreville Ridge.
 - While this species is usually found in small and large openings in the forest, sometimes associated with ground-disturbing activities that open the forest canopy, on Mooreville Ridge these openings are mostly natural sites of relatively shallow gravelly soils unsuitable for healthy growth of conifers. Without protective measures in place these sites can easily be used for temp roads, landings, burn piles, and other activities detrimental to this species. This particular site is adjacent to a recreational-use "road" and could easily be impacted by such activities. This small occurrence is easy to include within a botany Controlled Area to prevent impacts from planned Mooreville project activities.
 - This species dies back to the ground at the end of the growing season and becomes visible (to the trained eye) shortly after the winter snow melts. It remains visible until the fall rains and snow beat it down.
 - PNF Management Prescription for this species (USDA Forest Service 2014) says to:

Evaluate all project activities on a site-by-site basis considering species abundance, population size, geographic distribution, and known species ecology.
 - **MANAGEMENT REQUIREMENTS.** The one occurrence of Plumas rayless daisy found in the project area would be placed within a botany Controlled Area (CA).
 - No heavy equipment allowed on the ground within Controlled Areas.
 - Remove hazard trees as necessary – minimize ground disturbance (consult with botanist).
 - No thinning of canopy (consult with botanist about potential variance if needed).
 - Do hand-cut brush and non-canopy trees per project prescriptions – but no burn piles within Controlled Areas and minimize lop-and-scatter within Controlled Areas.
 - Do underburn per project prescriptions.

- **Fern-leaved monkeyflower** (*Erythranthe filicifolia* – PNF Watch List species).
 - This annual species is known from two small sites within project activity units, for a total of 0.12 acres. Both sites are within project activity units planned for Service Work. Both sites are included within Botany Controlled Areas which would avoid any ground disturbing activities.
 - This species is generally recognizable from April to July, and often longer. However, since it often grows intermixed with similar looking and more common species of *Erythranthe* (e.g. *Erythranthe microphylla* and *Erythranthe guttata*), it can be difficult to see. It tends to grow along ephemeral drainages across basalt flats and outcrops (on Mooreville Ridge) where forest management activities are generally minimal, but associated activities could occur (e.g. access roads, landings, etc.) so these sites would be protected within botany Controlled Areas.
 - PNF Management Prescription for this species (USDA Forest Service 2014) says to:

Protect all plant occurrences from ground disturbance. Maintain hydrologic conditions. Evaluate activities and use mitigations consistent with Riparian Conservation Objectives (USDA 2004). If the establishment of a no-disturbance buffer is appropriate, consider the following when determining the size and shape of the buffer: site conditions, topographic position, slope, aspect, stand structure (including canopy height), and intensity of the proposed management activity. Evaluate potential effects of prescribed fire on a site-by-site basis. Avoid scattering slash on plants. Keep hand piles at least 20 feet from plants to protect individuals and seedbank from excessive heat. Evaluate other activities on a site-by-site basis considering species abundance, population size, geographic distribution, and known species ecology.
 - **MANAGEMENT REQUIREMENTS.** All occurrences of fern-leaved monkeyflower are placed within botany Controlled Areas (CAs).
 - No heavy equipment allowed on the ground within Controlled Areas.
 - Remove hazard trees as necessary – minimize ground disturbance (consult with botanist).
 - No thinning of canopy (consult with botanist about potential variance if needed).
 - Do hand-cut brush and non-canopy trees per project prescriptions – but no burn piles within Controlled Areas and minimize lop-and-scatter within Controlled Areas.
 - Do underburn per project prescriptions.
- **Hutchison's lewisia** (*Lewisia kelloggii* subsp. *hutchisonii* – FS Sensitive species).
 - This perennial species is known from a total of 1.14 acres within project activity units, and an additional 0.47 acres along the sides of a principal road access through the project area and across that road from project activity units.
 - While this species is mostly found in small and large openings in the forest, these openings are generally natural sites of relatively shallow gravelly soils unsuitable for healthy growth of conifers. Without protective measures in place these sites can easily be used for temp roads, landings, burn piles, and other activities detrimental to this species. Thus, 96% of this population of Hutchison's lewisia would be protected from such ground-disturbing activities by being placed within botany Controlled Areas. The remaining 4% of the population is composed of widely spaced individual plants; only a fraction of these remaining plants might be randomly impacted by project activities.
 - This species is only visible during a brief period of two to four weeks, from May through July depending on elevation. The flowering period at any one location is often only one or two weeks. The rest of the year there is no above-ground evidence of the species.

- PNF Management Prescription for this species (USDA Forest Service 2014) says to:
Protect all plant occurrences from ground disturbance that result in soil displacement. Evaluate other activities on a site-by-site basis considering species abundance, population size, geographic distribution, and known species ecology.
- **MANAGEMENT REQUIREMENTS.** Almost all occurrences of Hutchison's lewisia would be placed within botany Controlled Areas (CAs).
 - No heavy equipment allowed on the ground within Controlled Areas.
 - Remove hazard trees as necessary – minimize ground disturbance (consult with botanist).
 - No thinning of canopy (consult with botanist about potential variance if needed).
 - Do hand-cut brush and non-canopy trees per project prescriptions – but no burn piles within Controlled Areas and minimize lop-and-scatter within Controlled Areas.
 - Do underburn per project prescriptions.
- **FS Sensitive plant species – may impact individuals of Hutchison's lewisia but not likely to cause a trend toward federal listing or loss of viability:**
 - The above ground parts of some plants may be inadvertently damaged by human trampling and by underburning, but management requirements will specifically minimize this.
 - Hutchison's lewisia plants would be protected from all potential mechanical ground-disturbing project activities.
 - Habitat would be improved by implementation of forest thinning activities while avoiding all ground-disturbing activities.
 - Risk of catastrophic wildfire would be greatly reduced.
- **Western waterfan lichen (*Peltigera gowardii* – FS Sensitive species).**
 - Within the project area, waterfan lichen is known from scattered sites in the bed of about 2000 ft of Rocky Creek. Unusual for a lichen, this species only grows on rocks under shallow flowing clear water. In general, it is not found in streams contaminated by mining or other human activities.
 - This species is generally visible all year.
 - PNF Management Prescription for this species (USDA Forest Service 2014) says to:
Protect all locations from disturbance. Maintain hydrologic conditions in streams where occurrences are found. Coordinate stream activities up and downstream of known occurrences. Consider a protection buffer to maintain canopy cover. If the establishment of a no-disturbance buffer is appropriate, consider the following when determining the size and shape of the buffer: site conditions, topographic position, slope, aspect, stand structure (including canopy height), intensity of the proposed management activity, and proximity to water.
 - **Specific botany Controlled Areas are not necessary for western waterfan lichen** because these sites, including an adequate buffer, will be protected within RCAs (Riparian Conservation Areas) established to protect hydrological features. These RCAs, implemented by the District hydrology program, are for the most part intended to prevent erosion into the creeks, incidentally resulting the prevention of otherwise potential detrimental effects to this species. No ground disturbing activities will occur within these RCAs, although underburns may occasionally creep to the edge of the creek.
 - **FS Sensitive plant species – will not affect individuals of western waterfan lichen:**

- No impacts or effects from project activities are anticipated within waterfan lichen habitat.
- **Felt-leaved violet** (*Viola tomentosa* – PNF Watch List species).
 - This small herbaceous perennial species is known from a total of 9.24 acres within project activity units. These occurrences are spread across a broad portion of the project area, both on Mooreville Ridge and on the ridge above Lexington Hill.
 - While this species is mostly found in small and large openings in the forest, sometimes associated with ground-disturbing activities that open the forest canopy, on Mooreville Ridge these openings are mostly natural sites of relatively shallow gravelly soils unsuitable for healthy growth of conifers. Without protective measures in place these sites can easily be used for temp roads, landings, burn piles, and other activities detrimental to this species. Thus, although a high level of protection from disturbance is not required by the Plumas NF Management Prescription (see below), 6.68 acres (74%) of the felt-leaved violet populations within project area would be protected from such ground-disturbing activities by being placed within botany Controlled Areas. The remaining 2.36 acres (26%) of the occurrences are composed of more widely spaced small clusters of plants, often in places with evidence of past disturbance.
 - This species is generally visible and identifiable from late May through July, beginning to dry out and be less obvious and less identifiable from August into September.
 - PNF Management Prescription for this species (USDA Forest Service 2014) says to:
 - Evaluate all project activities on a site-by-site basis considering species abundance, population size, geographic distribution, and known species ecology.*
 - **MANAGEMENT REQUIREMENTS.** The largest and most intact occurrences of felt-leaved violet would be placed within botany Controlled Areas (CAs).
 - No heavy equipment allowed on the ground within Controlled Areas.
 - Remove hazard trees as necessary – minimize ground disturbance (consult with botanist).
 - No thinning of canopy (consult with botanist about potential variance if needed).
 - Do hand-cut brush and non-canopy trees per project prescriptions – but no burn piles within Controlled Areas and minimize lop-and-scatter within Controlled Areas.
 - Do underburn per project prescriptions.

Species of conservation concern (rare plants) summary:

- *There are no concerns for species of conservation concern (USFWS Listed Threatened or Endangered, FS Sensitive, and PNF Watch List species) with implementation of Management Requirements during project implementation (see Appendix A).*

NON-NATIVE INVASIVE PLANTS (NNIP)

No non-native invasive plants (NNIP) are known from within this project area at this time. See Appendix A, Management Requirements, for measures to prevent the inadvertent introduction of NNIP into this area, and to treat them if found (Early Detection and Rapid Response).

Non-native invasive plants (NNIP) summary:

- *Concerns about NNIP in the project area are being addressed as part of project design with an integrated pest management program that meets the purpose and need for the project (see Appendix A).*

REFERENCES

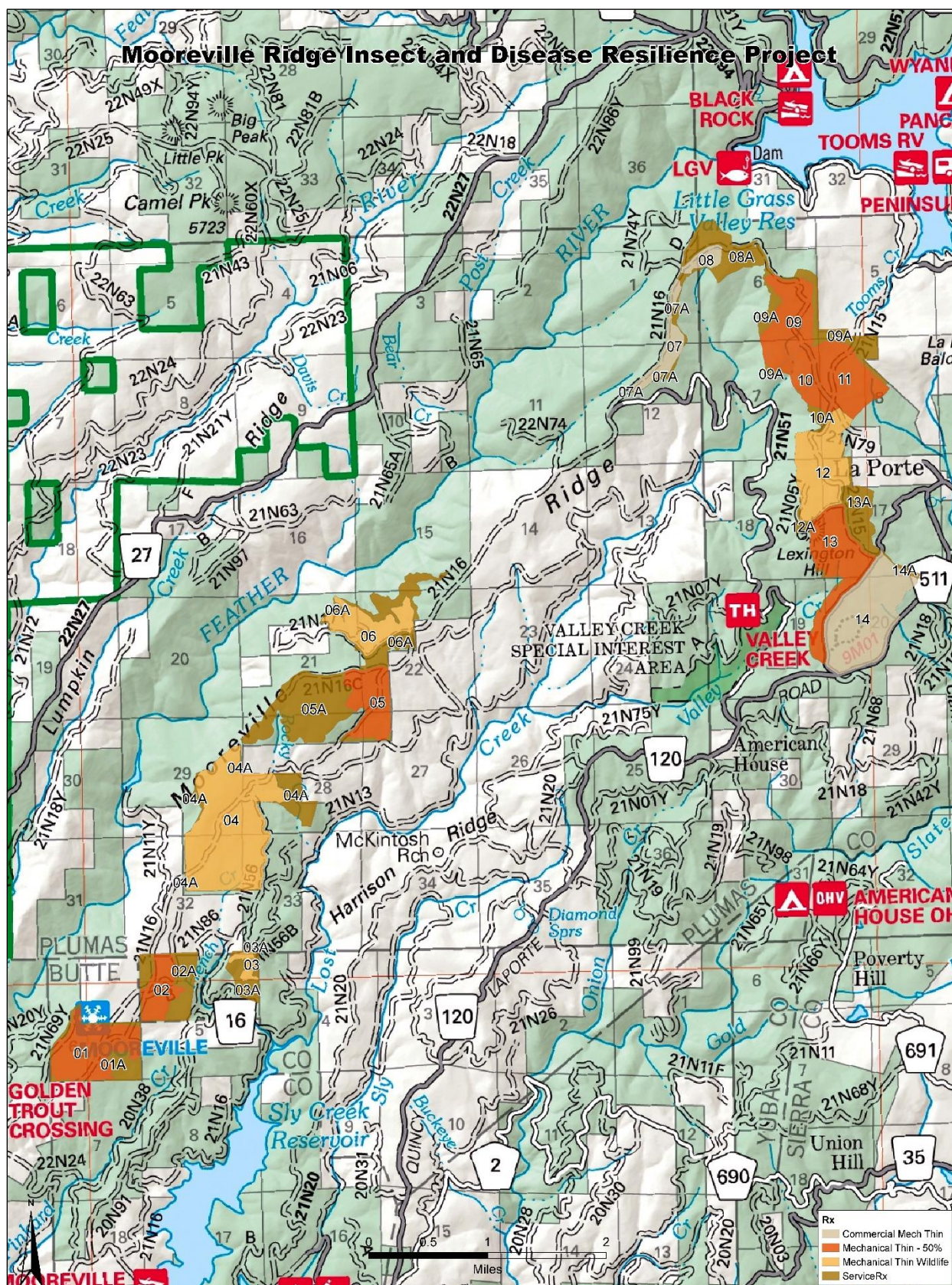
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USDA Forest Service. 2013. 2013 Sensitive Plant List. Pacific Southwest Region, Region 5. Letter from Regional Forester Randy Moore. File Code: 2670. Dated July 3, 2013.

USDA Forest Service. 2014. Plumas National Forest Interim Management Prescriptions for Threatened, Endangered, Sensitive and Special Interest [Watch List] Plants. Memo from Earl W. Ford, Forest Supervisor, to District Rangers. Dated October 16, 2014.

Mooreville Ridge Insect and Disease Resilience Project

The map displays the project area in California, showing topographic features, roads, and various land management areas. Key locations include Mooreville Ridge, Feather River, Little Grass Valley Reservoir, and the Golden Trout Crossing. The map is overlaid with a grid of sections and includes a legend for land management types: Commercial Mech Thin (light brown), Mechanical Thin - 50% (orange), Mechanical Thin Wildlife (yellow), and ServiceRx (dark brown). A scale bar indicates distances up to 1 mile.



APPENDIX A
BOTANY Management Requirements for the Mooreville Forest Health Project.

Potential Resource(s) Affected	Management Requirements Designed to Reduce or Prevent Adverse Effects	Responsible Person(s)
Rare Plants - Conservation	<p>BOTANY CONTROLLED AREAS (CAs) have been established for the protection of rare plants.</p> <ul style="list-style-type: none"> • NO HEAVY EQUIPMENT or other vehicles allowed on the ground within CAs -- equipment reaching into a CA to retrieve logs, or pulling logs out of a CA, or similar, is ok; • NO BURN PILES – do lop-and-scatter within CAs, but remove as much slash as practical to burn piles outside of CAs; • No herbicide use; no site prep, planting, or timber stand maintenance; • Minimize goat browsing and livestock grazing. <p>ADDITIONAL CONSIDERATIONS for CLUSTERED LADY’S-SLIPPER:</p> <ul style="list-style-type: none"> • Prior to any underburning through these Controlled Areas crews should remove as much coarse woody debris as possible from within 5 ft of all lady’s-slipper plants (this can usually be accomplished by the botany crew while refreshing CA flagging). 	Botanist, Project Implementation Teams, Contract Administrators
Rare Plants - Conservation	<p>BOTANY CONTROLLED AREAS will be shown on the project implementation maps and be flagged on the ground by red-and-black-stripe and blue-and-black-stripe flagging always tied together.</p> <ul style="list-style-type: none"> • Contact the District Botanist prior to project implementation to ensure that flagging is in place and refreshed as necessary. 	Botanist, Implementation Team, and Contract Administrator
Rare Plants - Conservation	No herbicide use is allowed within 50 ft of any rare plants regardless of whether the rare plants are included within a botany Controlled Area.	Botanist, Implementation Team, and Contract Administrators
Non-native Invasive Plants (NNIP) - Prevention	Ensure that all plant material and fill material used for erosion control and/or road maintenance is free of NNIP, including straw, mulch, gravel, and rock (<i>certified weed-free</i>).	Botanist, Implementation Team, and Contract Administrator
Non-native Invasive Plants (NNIP) - Prevention	Clean all off-road equipment entering the project area if it may be coming from areas infested with nonnative invasive plants (NNIP).	Botanist, Fuels Officer, Project Implementation Teams, Contract Administrators

Potential Resource(s) Affected	Management Requirements Designed to Reduce or Prevent Adverse Effects	Responsible Person(s)
Non-native Invasive Plants (NNIP) - Prevention	<p>To the greatest extent feasible keep all equipment, vehicles, and supplies out of areas of known NNIP infestations, including any NNIP infestations along access routes and new infestations that may be discovered during project implementation. NNIP infestations may sometimes be flagged with bright orange “noxious weed” flagging.</p> <ul style="list-style-type: none"> Any equipment, vehicles, and supplies that come in contact with NNIP infestations (plants or the ground close to them) during project implementation should be thoroughly cleaned of dirt, mud, and plant debris before entering any un-infested project area. Hand cutting of broom plants and placement of burn piles on top of NNIP infestations is encouraged. New infestations should be mapped and reported to the District Botanist. 	Botanist, Fuels Officer, Project Implementation Teams, Contract Administrators
Non-native Invasive Plants (NNIP) - Prevention	<p>Members of the project implementation teams (layout crew, contract administrator, etc.) should watch for and be able to recognize NNIP.</p> <ul style="list-style-type: none"> As time allows, pull some or all of NNIP encountered during project activities (avoiding Archaeology controlled areas). New infestations should be mapped and reported to the District Botanist and flagged and avoided. 	Botanist, Project Implementation Teams, Contract Administrators
Non-native Invasive Plants (NNIP) - Prevention	<p>Monitor areas of project related ground disturbance (e.g. skid trails, temp roads, landings, trails, etc.) for NNIP for up to 10 years following implementation of each project activity.</p> <ul style="list-style-type: none"> As funding becomes available, new and old infestations of NNIP should be pulled or otherwise treated. New infestations should be mapped and reported to the District Botanist. 	Botanist and Implementation Team